

9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Poster Presentations

P-149

The impact of paternal age on sex chromosomes aneuploidy, blastocyst rate and quality with pregnancy outcomes

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Background: Postponing childbirth by couples in developed countries is increasing. Paternal age has been ascending between all educational levels, races, and geographic regions. Over the past four decades, the percentage of fathers older than 40 years has doubled, from 4.1% to 8.9%. Therefore, investigating a possible correlation between chromosomal aneuploidy and paternal age, analyzing embryos derived from the frozen and fresh embryo transfer is questionable.

Objective: The present study aimed to evaluate the probable effect of paternal age on aneuploidy, blastocyst rate, embryo development, implantation potential, and pregnancy outcomes in preimplantation genetic testing (PGT) cycle with single blastomere

biopsy on the day three by fluorescence in situ hybridization (FISH) for sex chromosomes.

Materials and Methods: The present study included 277 embryos between February 2018 and June 2020. Seventy-six women underwent intracytoplasmic sperm injection with preimplantation genetic testing for aneuploidy using fluorescence in situ hybridization method cycles were divided into four paternal age groups: ≤ 35 , 36-40, 41-45, and ≥ 45 yr. Primary outcomes were the rate of aneuploidy, blastocyst, and pregnancy. Statistical analyzes were performed using SPSS software version 23 and the data were analyzed using the χ^2 test. The $p < 0.05$ was considered statistically significant.

Results: Significant differences among four groups in chemical pregnancy ($p < 0.001$), clinical pregnancy ($p < 0.001$), ongoing pregnancy ($p < 0.001$) and live birth rate ($p = 0.22$) were found. There was no early pregnancy loss and clinical pregnancy loss in cycles with paternal age under 35 yr rate ($p < 0.01$). The rate of aneuploidy in sex chromosomes, embryo development in frozen embryo transfer, and fresh cycle were not significantly related to parental age.

Conclusion: We didn't find any significant relationship between paternal age and embryo aneuploidy but an association was found between paternal age and pregnancy outcome in embryos from intracytoplasmic sperm injection cycles.

Key words: Preimplantation genetic testing, Aneuploidy, Fluorescence in situ hybridization.